

July 15, 2005

MEMORANDUM TO: John N. Hannon, Chief  
Plant Systems Branch  
Division of Systems Safety and Analysis

FROM: David Solorio, Chief */RA/*  
Balance of Plant Systems Section  
Plant Systems Branch  
Division of Systems Safety and Analysis

SUBJECT: TRIP REPORT REGARDING STAFF OBSERVATION OF TESTING  
FOR GE NUCLEAR ENERGY ACTIVE PWR SUCTION STRAINER

The purpose of the trip was to observe test facilities and demonstration of concept testing for an active PWR suction strainer being conducted by GE Nuclear Energy. The trip was to the facilities of Continuum Dynamics, a subcontractor for GE Nuclear Energy, located in Ewing New Jersey. At the request of NRC staff, GE Nuclear Energy prepared a summary of the Demonstration Testing and forwarded it to the NRC in a letter dated February 10, 2005. This summary was prepared by GE Nuclear Energy to document results of testing observed by NRC staff in a document which they considered non-proprietary and available for public release. (Attachment 1).

On January 5, 2005, the NRC staff observed the testing and held discussions regarding the preliminary design. Staff present included Michael Johnson, Deputy Director of DSSA/NRR; Branch Chief John Hannon, Section Chief David Solorio, Ralph Architzel, Hanry Wagage, Shanlai Lu, and Thomas Hafera of SPLB/DSSA/NRR and Mark Giles of Region I. Additional testing was observed on January 7, 2005, by Ralph Architzel and Thomas Hafera, both of SPLB/DSSA/NRR. Other attendees observing and conducting the testing included representatives from Constellation Energy, Entergy, Dominion, OPPD, Sargent and Lundy, Proto Power, Southern Nuclear, GE Nuclear Energy and Continuum Dynamics. Attachment contains the detailed list of attendees.

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The testing observed by the NRC was conducted to allow observation of how the active plow and brush function to sweep incoming debris of various representative types. The initial testing was conducted using low concentrations of debris, which allowed visual observation of the active strainer. Debris loading was subsequently increased to high concentration quantities, stated to be scaled to maximum calculated values for a particular plant. The NRC was not present for the second day of testing, which included gradually increasing debris loading. On January 7<sup>th</sup>, 2005, the entire debris loading from the second day in addition to another plant specific maximum loading was tested for the demonstration.

The testing observed by the NRC showed that the active strainer design appeared capable of handling representative debris loads, including materials intended to simulate debris from chemical effects, because it either sweeps debris that accumulates on the sump screen off the screen surface or forces small, masticated debris, through the strainer. The staff noted that resolution of PWR sump performance issue (GSI-191) requests examination of effects on downstream components. The testing also confirmed that the active strainer does involve bypass/pass-through effects that would need to be considered by a plant implementing an active strainer design. Additional details and data regarding the demonstration testing are included in Attachment.

Attachment: Summary of Demonstration Testing for GE Active PWR Suction Strainer (GSI-191), letter MFN 05-010 dated February 10, 2005 from G Stramback GENE to J Hannon NRC.

The testing observed by the NRC was conducted to allow observation of how the active plow and brush function to sweep incoming debris of various representative types. The initial testing was conducted using low concentrations of debris, which allowed visual observation of the active strainer. Debris loading was subsequently increased to high concentration quantities, stated to be scaled to maximum calculated values for a particular plant. The NRC was not present for the second day of testing, which included gradually increasing debris loading. On January 7<sup>th</sup>, 2005, the entire debris loading from the second day in addition to another plant specific maximum loading was tested for the demonstration.

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